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Building monument materials during the 3rd-4rd millennium (Portugal)

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Dolmens are the most conspicuous remains of the populations of the 4th and first half of 3rd millennia BCE. These tombs are impressive not only for their monumentality, but also because of the socioeconomic investment they represent for those Neolithic communities, namely from the Central-South of Portugal, who built them. Although dolmens have been studied for their funerary content and typologies, an interdisciplinary approach toward the geological characterization and sourcing of stones used in these constructions has not received enough attention from researchers. With MEGAGEO project a multidisciplinary group of geologist and archaeologists intends to assess the relationship between the distribution of dolmens in Central-South Portugal, their source materials, and the geological landscape. GIS will map the information gathered and will be used to analyse these relationships. The selection of the areas, with distinctive geologies (limestone vs granite), will allow to verify if human patterns of behaviour regarding the selection of megaliths are similar or different regionally.

Geologically the first target area (Freixo, Alentejo) is dominated by a small intrusion of gabbro mingled/mixed within a granodioritic intrusion both related with variscan orogeny. Granodiorite exhibit several enclaves of igneous and metamorphic nature attesting the interaction between both igneous rocks as well with enclosing gneisses. Despite Alentejo region have a reduced number of outcrops the granodiorite provides rounded to tabular metric blocks. The gabbro is very coarse grained, sometimes with a cumulate texture, and their fracturing and weathering provide very fresh tabular blocks.

The five studied dolmens (Quinta do Freixo #1 to #5) are implanted in a large granodioritic intrusion, around the gabbroic rocks, within an area of approximately 9km². The medium grained granodiorite is ubiquity in all the dolmens slabs and occasionally it can be observed features of mixing and mingling mechanisms; interpenetration of different magmas and enclaves. There were not identified slabs of gabbros in dolmens slabs. In distances less than 100m from the dolmens, it is possible to identify an outcrop with equal features (petrographic as well geometric) with those found in the slabs. These observations agrees with previous authors (e.g. Boaventura, 2000) that favours a pragmatic attitude of Neolithic populations in the search of the appropriate slabs for construction.

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Boaventura, R. (2000) - A geologia das Antas de Rabuje (Monforte, Alentejo), Revista Portuguesa de Arquelogia. Vol. 3;2.pp-15-23.